Overview

- Media *in* the world
  - Introduction to AR and technologies
- A course on "AR Experience Design"
  - Domain: Oakland Cemetery
- AR Experiences in Historic Settings
  - Recent class projects

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Media in the World: Augmented Reality (AR)

- Directly enhance a person's senses with synthetic information
  - 3D graphical objects and sound merged with the world
- *Out in* the Physical World
  - Use wearable computers, see-through displays
  - Display media in context of physical space

AR in Historic Settings ○ ● ●
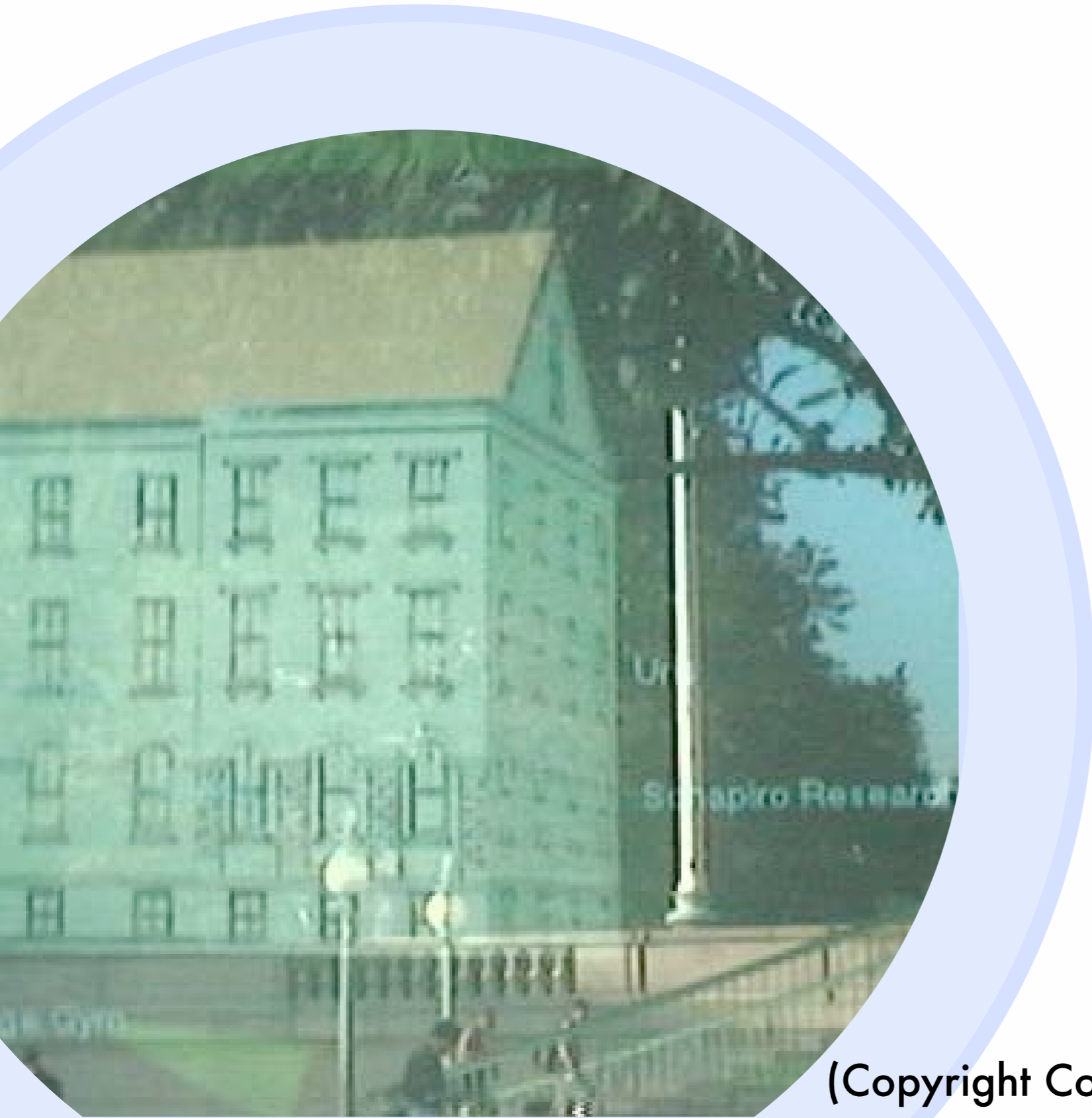
- **Physical re-creations**
  - ○ Show site as it was at different times
  - ○ Seen from perspective of visitor
- **Examples**
  - ○ Original asylum on Columbia campus in Situated Docs/MARS
  - ○ Greek sites with ArcheoGuide

(Copyright Columbia University)

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AR in Historic Settings ○ ● ●

● **Drama & narrative**

  ○ Build on non-AR tours

  ○ Use stories (factual or fictional) to engage, entertain

  ○ Recreate sites, characters, events

● Examples

  ○ Our class projects often use ghosts near graves to tell stories

(Courtesy Smitha Prasadh)

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Why use AR?

In Place Display

Continuous Display

Private, Unobtrusive

Per-user Customization

(Courtesy Emmanuel Moreno)

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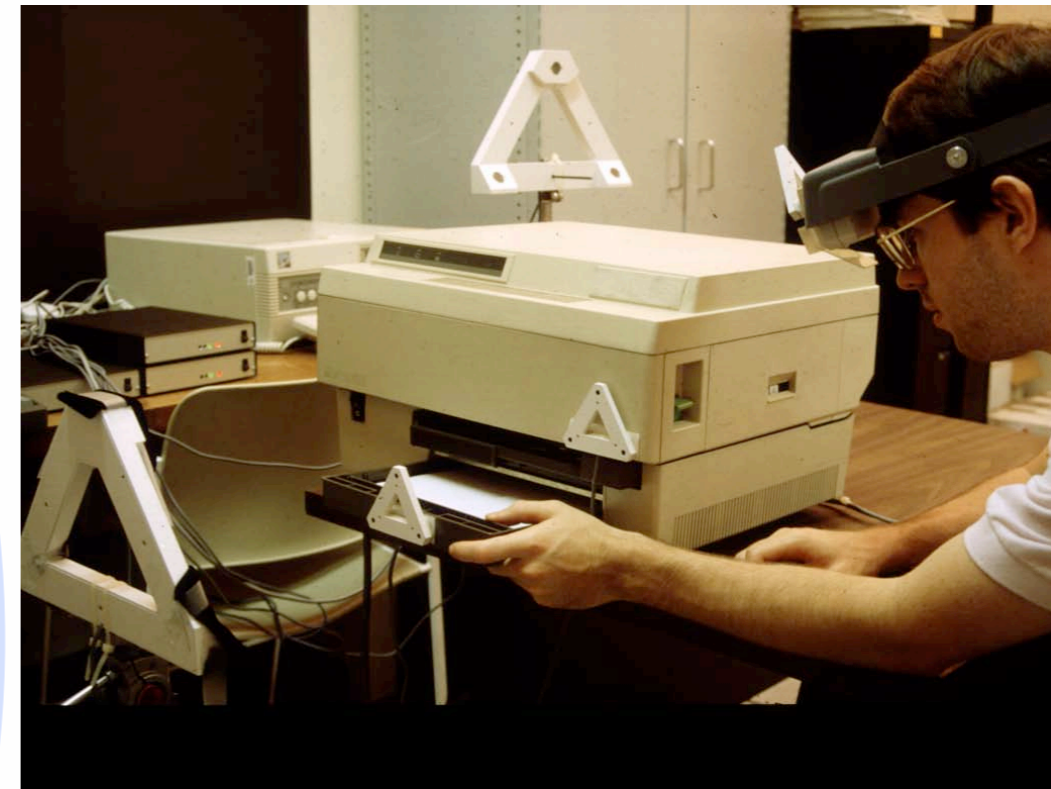
How does AR work?

See-through display

How does AR work?

Head (display) tracking

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How does AR work?

"Interesting object" tracking

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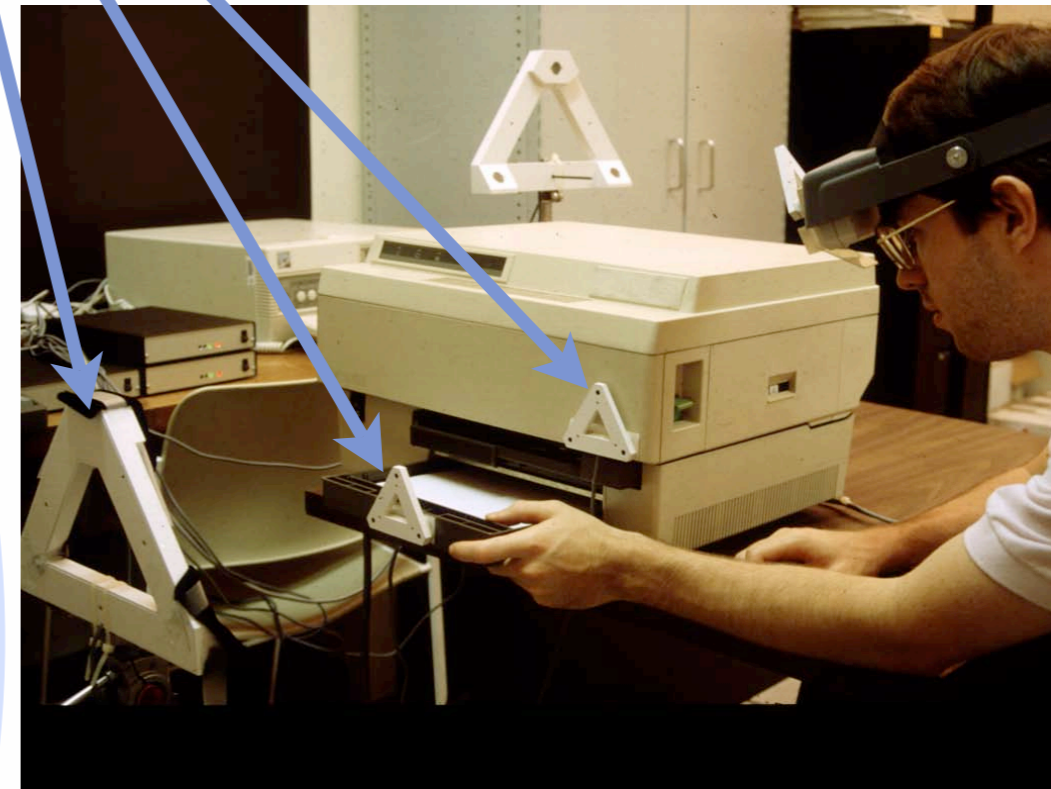
Current Technology

- Thales Navigation Z-Max RTK GPS
- 1-2 cm accuracy

- Intersense Inertiacube2
- Sub-degree accuracy

Intersense VizTracker (pre-release)
Sub-centimeter position accuracy
Sub-degree orientation accuracy
(www.intersense.com)

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A Course on "AR Experience Design"

- Course Design
  - Multidisciplinary content, group projects
  - Emphasis on the design of the experience
- Technological support for prototyping
  - Specific support for early design activities
- Project focus
  - AR Experiences in Oakland Cemetery
  - Groups can emphasize one or more of
    - Content, media theory, technology

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Course Overview

- **Combine concepts from New Media Design, Experience Design, Human-Computer Interaction**
  - How do we create AR experiences willing participants can understand, enjoy, learn from?
- **Projects in Historic Settings**
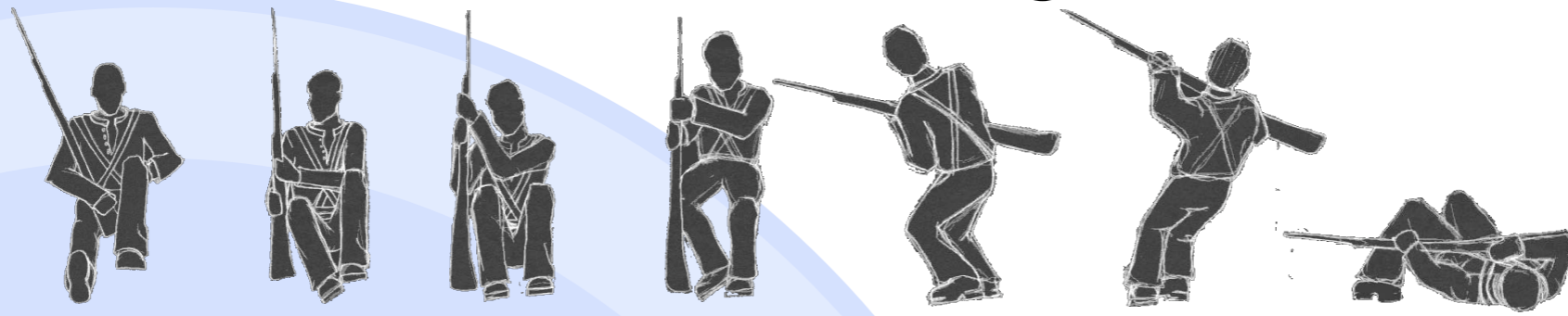 - Rich content, many possible approaches, varied customers

vs

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Technological Support: DART (the Designer's AR Toolkit)
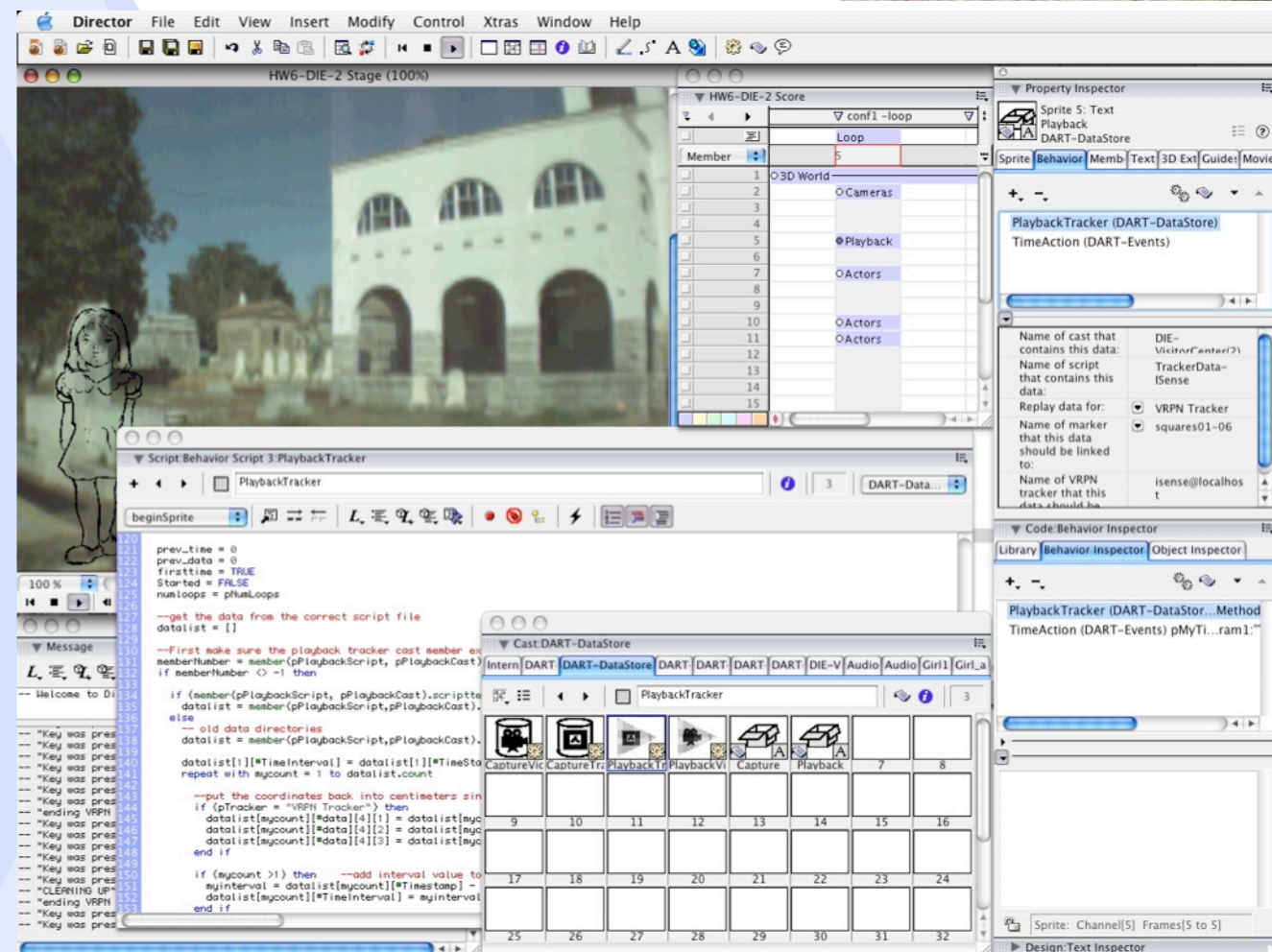
- **Built on Macromedia Director**
  - Familiar tool, model
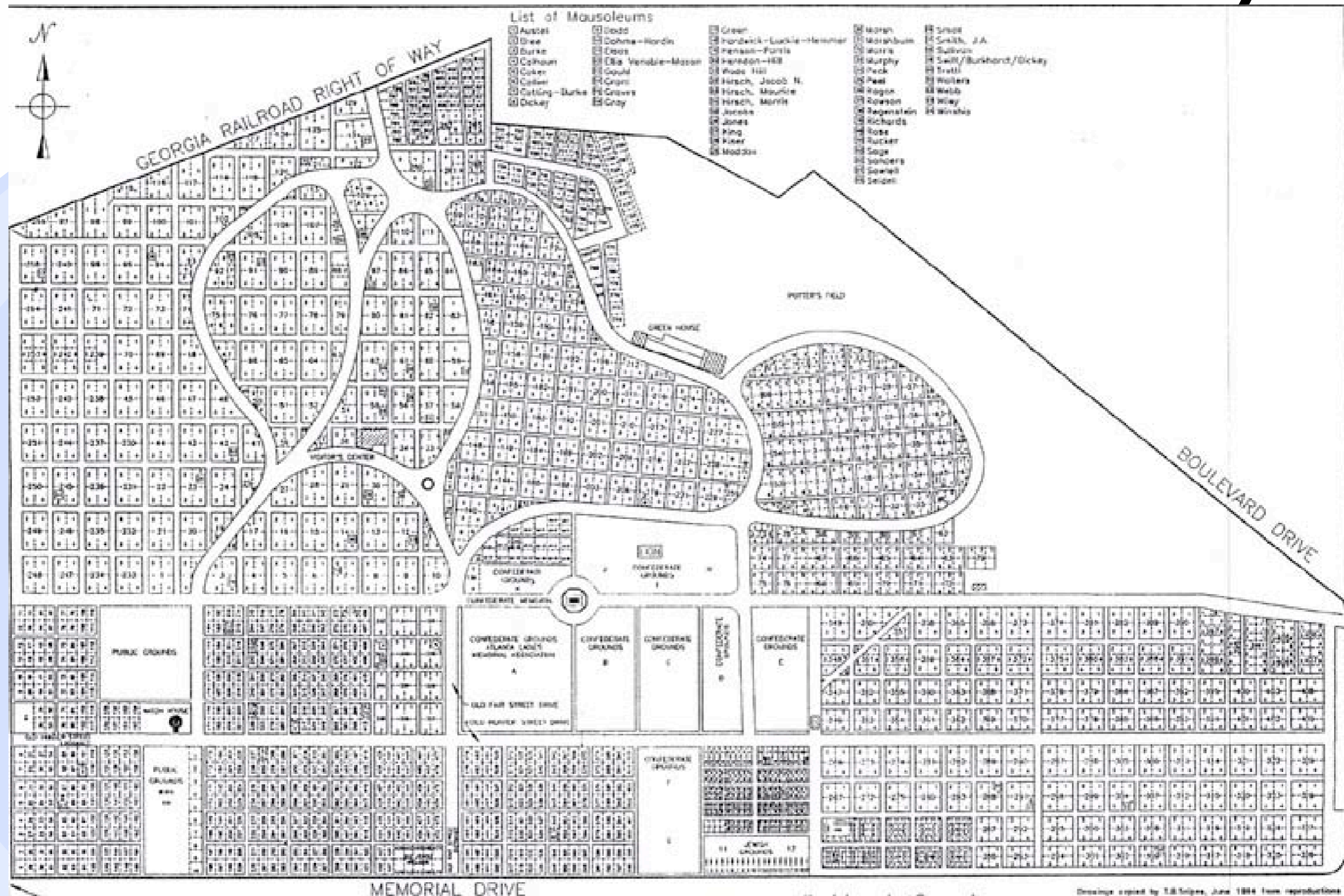- **Simple access to many technologies**
  - Camera, trackers, …
- **Sketched 3D content**
- Easy to experiment

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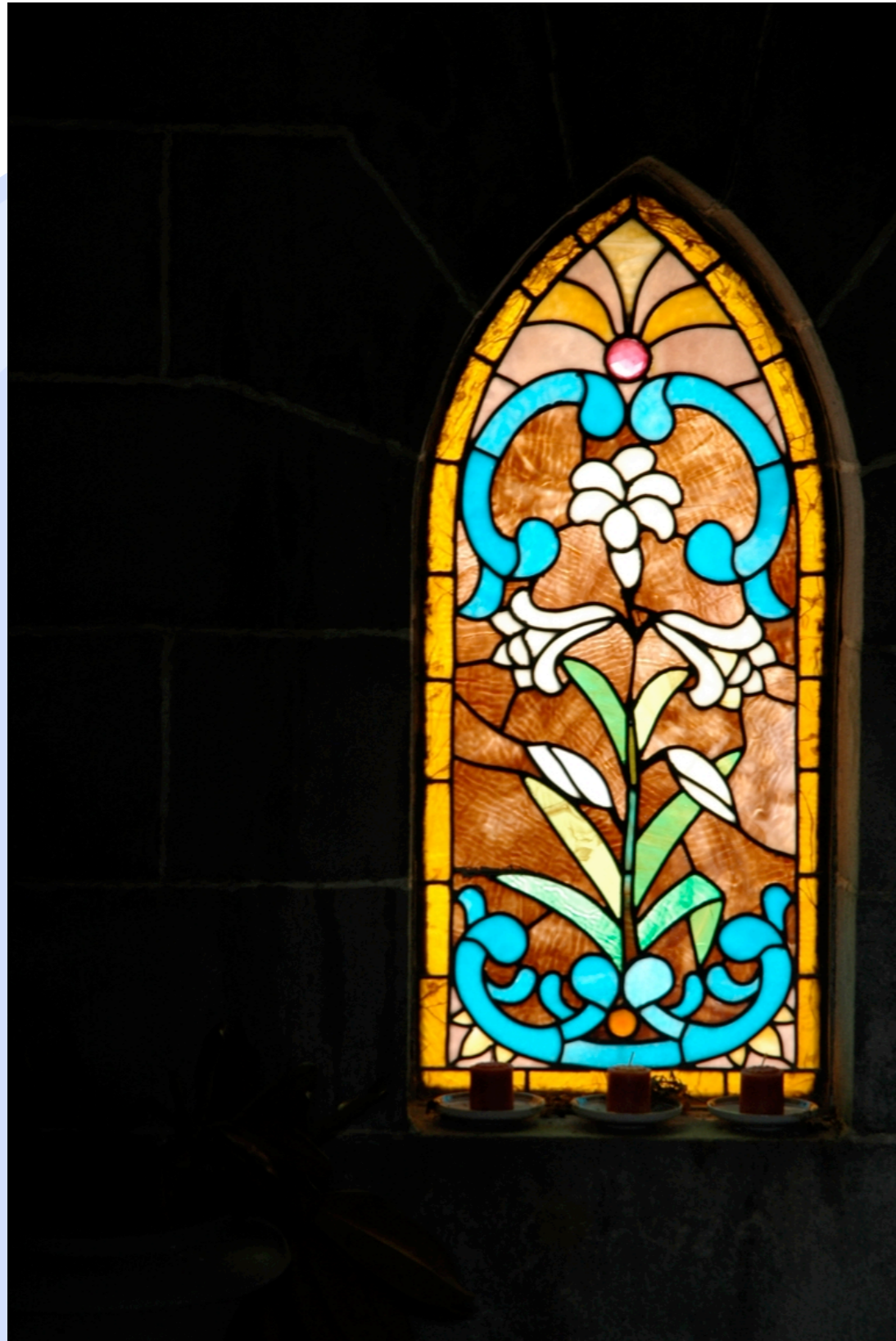
AR in Oakland

- What kinds of experiences would be appropriate and effective?
  - Client interested in restoring the cemetery
  - No "ghost and goblins" stories, games
- What kinds of information to convey?
  - Much of US history represented
  - History of Atlanta? South? Civil War? Oakland?
- Consider context of experience
  - King District, school tours, families, tourists, …

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Recent Projects

- **Edutainment for kids**
  - The Trial of General Sherman
    - Kids divided into defense and prosecution, "find" witnesses in cemetery, watch trial unfold
  - Best all-time Mayor of Atlanta
    - Formwalt (1st), Calhoun (Civil War), Woodward (1900's), Jackson (1st Black)
- **Fun, fact-based tour retold by occupants**
  - The Story of Andrew's Raiders
    - Travel across cemetery, finish at plaque of hanging

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Recent Projects

- **Eras of the Cemetery**
  - Juxtapose historic time with areas of cemetery
    - Dense, layered, info-centric: combine stories of occupants with their place in history of the South
  - Musical Eras of Oakland
    - Enhance visit with audio representing culture of area and time-period of people buried there
- **Fictions**
  - Ghost wife of missing fictional person, visit ghosts who knew him, incidentally learn history
  - Love story of slave and Union soldier

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Summary

- Augmented reality enables *in-situ* media-rich experiences that keep people focused on the physical space
- Technology is "almost" there
  - Currently expensive, bulky, fragile
  - DART attempts to make it accessible
- Immersive dramatic experiences can leverage "aura" of physical space

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Further Information ○ ● ●

For more information, see my research lab web pages

www.cc.gatech.edu/ael

For more information on DART, see

www.gvu.gatech.edu/dart

Or contact me directly at

blair@cc.gatech.edu

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